

# Fig. 1A

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Human\_p53 ~~VEEPOSQDPSSVEPPLSQETPSDFEWKLTOPENV~~ --- LSP --- LPSQAMD  
 Xen\_p53 ~~EE-PSETGMDDPLSQETPSDFEWKLTOPENV~~ --- P-EQVT  
 Squid\_p53 ~~ESQGTS~~ --- PNSOERFNLWDSDEQVTANEYXTQIHERGVGYEYHEAEPDQTSEISA  
 CPB\_p53 ~~MS-SQSD~~ --- FLPPDVQNFLLAEMEGD  
 Trib\_p53A ~~MS-QQS~~ --- QFSQDIPDWKEEDH  
 Trib\_p53B ~~MS-QQS~~ --- QFSQDIPDWKEEDH  
 Helio\_p53 ~~MSWHKESTDSEDDSTEVYDIK~~ --- EDIPPKTV  
 Dr s\_p53 ~~EVYISQ~~ --- c nsensus m q8 et 1 1e  
 c nsensus m p p a t v p  
 Human\_p53 DLWLSSEDDI --- EQWFTEDPGPDEAEFRMPEAEPRY --- APAPAPAPPAAPAPA  
 Xen\_p53 CRENLS --- SCAVPSTDIDYACKYGLQEDFOQ --- VLOEGLMGNAVPTWT  
 Squid\_p53 YRHAQDPPYGRSESYDLNPIINQIEAPMPFIADTQNNPLVNHCYEDMPVSSTPYSPHDH  
 CPB\_p53 FFKDEET --- LNDLNVNNDLNG --- SIVANDDEKMVLHLEFPG  
 Trib\_p53A GRMHNEN --- NVHLVNDLNG --- EKYSNEANTYSESFP  
 Trib\_p53B ROYKEDP --- FSHTFHPITCSIFQLEDKFENINQSYLSAPF  
 e11\_p53 Dros\_p53 EVSGSELT --- TEEMAFLQELNNSGN --- LMQFSQQSVLREMMLQDI  
 c nsensus m p p a t v p  
 Human\_p53 PL --- SSIWPSQKTYOGSYGGFERGFLH - SGTAKSVFCTYSPALNKMECQIAKTCPCVQLWVD  
 Xeno\_p53 --- SCAVPSTDIDYACKYGLQEDFOQ --- NGTAKSVFCTYSPALNKMECQIAKTCPCVLYRVE  
 Squid\_p53 VQSPSPSVPNSNIXXPEVFEAQSPPSKETKSTWVYSEKLDKTYWVMTATTCEBVREKTA  
 CPB\_p53 --- VQSPSPSVPNSNIXXPEVFEAQSPPSKETKSTWVYSEKLDKTYWVMTATTCEBVREKTA  
 Trib\_p53A --- DCSPNLGTEYPCPENSYWLSP --- TVARNSWVYSTANKWVMTATTCEBVREKTA  
 Trib\_p53B --- SEPLELCNTYPCPENSYWLSP --- NEQSPSPWSEKLNKWEVMTATTCEBVREKTA  
 Helio\_p53 --- DROSPSPWSEKLNKWEVMTATTCEBVREKTA  
 Dr s\_p53 QIQANTLPKLENHNIGGQESEVEDE --- PPKSILMYSIPPLNKEXTRWNAENUDYQFK  
 consensus q svpsq dy g y f 1 v k tw ys lkmyv ma fpv f v  
 Human\_p53 STEP --- PGTRVRAMATEYKOSQHETTEVRRCPHHERCS --- SGGLAPPQHETIRVEGNL  
 Xeno\_p53 SPBP --- RGSIERATAVAKKSERVAENVKRCPPHERSVEP --- GEDAAPPSEMVEGNLQ  
 Squid\_p53 SPPB --- SGCCQTRAMATEYKOSQHETTEVRRCPHHERCS --- NEKHPAPLHIVRCEHKL  
 CPB\_p53 HRP --- NPLPQHETTEVRRCPHHERCS --- DGDKEHHRPHIIRCANOYA  
 Trib\_p53A NRBNOLPPEYERTRSTPVSAFQAECPVYRCNHRPQDOS-NKGVAPFHQHIRCTDNA  
 Trib\_p53B KADEBERRERVYRVMPPMKEEDRYQVEVWRCPHHERCS --- NHVNSEMAQHIIRCNDNA  
 Helio\_p53 YQKA - PHMNRSTVVESDTOAEKRVRCVQHESSTSQIOTELAKNVLHSREIGTG  
 Dros\_p53 SKMFIQOPENLRVPLCESND --- VSAPVVRCONHLSVEPLA --- ANNAYKRESEERSENPN  
 c nsensus pp 1fvratpvy s hvqevv RClnHe d s d 1 hirrcenna  
 Human\_p53 VEYLDRNT --- FRHHSVVFYEP --- BEVGSDCTAHYNM CNSCMG-GMNRPILTI  
 Xen\_p53 AYTMEDVNS --- GRHSVCVPYEG --- BOVGETCAYLYNM CNSCMG-GMNRPILTI  
 Squid\_p53 AKYHEDKYS --- GRSVTEPHM --- PQAGSEWVNLIOE CLGSCMG-G-PNRPILTI  
 CPB\_p53 AYLGDKSKN --- ERLSVUVEPFGI --- PQTGHESVREIEFWCKNSCP SP GMNRPILTI  
 Trib\_p53A EYEGDKNTG --- TRLENVIBLAH --- BOVGEDEVVKKEFEQEWCKNSCP SP GMNRPILTI  
 Trib\_p53B QYEGDKNAG --- KRLS ---  
 Helio\_p53 YYCGKXVDM --- ADWSYSLVLF --- MRTSSESCSHAYEFSCKNSCAT-GENRAFAFI  
 Dros\_p53 YYCNAQGKGISEEFSSVVEBLNMSRSVTRSGLTLRQELAEMCONSCG --- RKTETSEV  
 consensus yyggk --- svvvpe --- pq gseet ynfmc nscmg gmnrpi 11

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Fig. 1B

Human\_P53 ITLEDSSGNEIGRNSPEVRWCACPFDRRTREE-NLRKRG--EPHHELPGSTKRALP  
 Xeno\_P53 ITLETPOGLITGRACEFVRWCACPFDRRTTED-NYTKK--RGLKESG-KRELA  
 Squid\_P53 ETLEK-DNQVGEGRATVVRCAACPFDRKAEEASLVSK-PPSPKKNGFPQRSLV  
 CPB\_P53 FTLEDNOCTEYGRKTENVRCSCPKRDRKEDDNTANT-NLEHG-XKRKME  
 Trib\_P53 FTLEDNKGEVFGRLYGVRCSCPKRDRKEEK-DMESA-VEPRRKERKG  
 Helio\_P53 ECLEKACGDEYQOHVHEHVKCCTCPKRDRIQDERQNLNSKVKRSVPEAAEDEPSKVVERCH  
 Dros\_P53 f1 d g 119x v vrvc cp rdr eek k p g kr 1  
 consensus  
  
 Human\_P53 NNTSSSP-QPKX--KPLDGEYFTEQTRGREREKPRENEALELKDAOG---  
 Xen\_P53 HPPSSSEPPPLPKXKLVYDDDEIEFLTRKGRSRVEWIKKENDALELOESDQQ--  
 Squid\_P53 LTNDITKITPKX--RKIDDECFTKVRGRENYEELCKERDIVELAAREPEAERLYKQE  
 CPB\_P53 XPSKKPMOTOAE--NDTKEFTLTFEPYGRHNEONVLYKCHDFMAGEIERN--  
 Trib\_P53 A NDERRVVQPQGSS--DNKIFALNTHPGRKNXQLQALKCQDWANEIUKKO--  
 Helio\_P53 frib\_P53  
 Dros\_P53 IKTEDTESNDSRDCDDSAANWVVERTDGDYRLAETCPNKEMLOSIEGMIX--  
 consensus k t1 i gr f m k1 e 1 d 1  
  
 Human\_P53 -KEPGG--SRAHS9HLKSKKGQ--  
 Xen\_P53 -KVTIK--CRKCRCDEIEPKKG--  
 Squid\_P53 RQAPIGRLTSPLPSSSSNGSDGSRSSTAFSTSDDSSQVNNSQNTQWNGQVPHEEETPVT  
 CPB\_P53 --IG--NGTEGPYKIALN--  
 Trib\_P53 A --EQG--GD-DSADKNYN--  
 Trib\_P53 B --  
 Helio\_P53 --EAAAEVLRNPQNQENLERHAN--  
 Dros\_P53 --  
 consensus g  
  
 Human\_P53 -  
 Xeno\_P53 KCEPTENTIAQWLTKLGLQAYIDNFQKGLHNMFQLDFTLEDLQSMRIGTGHRNIKWS  
 Squid\_P53  
 CPB\_P53  
 Trib\_P53 A  
 Trib\_P53 B  
 Helio\_P53  
 Dros\_P53  
 consensus  
  
 Human\_P53 --  
 Xeno\_P53 --  
 Squid\_P53 LLDYRRLLSGTGESQALQHAASNASTLSVGSONSYCPGFYEVTRYTYKHTISYL  
 CPB\_P53  
 Trib\_P53 A  
 Trib\_P53 B  
 Helio\_P53  
 Dros\_P53  
 consensus